ABSTRACT

Embodiments of the present invention provide methods and for improving the stability or efficacy of the double stranded siRNAs by replacing either one or both of its native RNA strands with homologous RNase-resistant poly-DNP-RNA to form poly-DNP-siRNA, where DNP denotes a 2'-O-(2,4-dinitrophenyl) represented by the structure:

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wherein R², R⁴, and R⁵ are independently H, halide, linear or branched alkyl, linear or branched acyl, linear or branched alkylene, linear or branched O-alkyl, linear or branched amido, linear or branched S-alkyl, mono or disubstituted amine, linear or branched thioamido, phosphothionate, or phosphothioate. Additional embodiments include DNP-derivatized siRNAs with improved stability or efficacy compared to non-DNP-derivatized siRNAs.